and Tables 9 and 10 above.

A three-dimensional (3-D) simulation model was used to simulate an in situ conversion process for a tar sand formation. A heat injection rate was calculated using a separate numerical code (CFX). The heat injection rate was calculated at 500 watts per foot (1640 watts per meter). The 3-D simulation was based on a dilation-recompaction model for tar sands. A target zone thickness of 50 meters was used. Input data for the simulation were as follows:

Depth of target zone = 280 meters;
Thickness = 50 meters;
Porosity = 0.27;
Oil saturation = 0.84;
Water saturation = 0.16;
Permeability = 1000 millidarcy;
Vertical permeability versus horizontal permeability = 0.1;
Overburden = shale; and
Base rock = wet carbonate.

Six component fluids were used based on fluids found in Athabasca tar sands. The six component fluids were: heavy fluid; light fluid; gas; water; pre-char; and char. The spacing between wells was set at 9.1 meters on a triangular pattern. Eleven horizontal heaters with a 300 m heater length were used with heat outputs set at the previously calculated value of 1640 watts per meter.

In The Claims:

Please cancel claims 1-2269 and 2309-5395 without prejudice.

Listed below is a clean copy of amended claims. A marked-up copy indicating the amended sections of the claims is provided in an accompanying document.

Please amend the claims as follows:

2298. (Amended) The method of claim ~~2270~~, further comprising producing a mixture from the formation, wherein a partial pressure of H_2 within the mixture is measured when the mixture is at a production well.

Please add the following claims:

5396. (New) The method of claim ~~2306, wherein at least about 20 heat sources are disposed in the formation for each production well.~~